R E P O R T R E S U M E S

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THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN. MANUAL OF INSTRUCTIONS FOR ADMINISTERING AND SCORING THE TWENTY QUESTIONS TASK.

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THIS MANUAL DESCRIBES MEASURES USED IN "THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN" PROJECT AT THE UNIVERSITY OF CHICAGO. THE SAMPLE FOR THE STUDY CONSISTED OF 163 NEGRO MOTHER-CHILD PAIRS SELECTED FROM 3 SOCIOECONOMIC CLASSES BASED ON THE FATHER'S OCCUPATION AND THE PARENTS' EDUCATION. A FOURTH GROUP INCLUDED FATHER-ABSENT FAMILIES. THE MOTHERS WERE INTERVIEWED AT HOME AND THE MOTHERS AND CHILDREN WERE TESTED AT THE UNIVERSITY OF CHICAGO WHEN THE CHILDREN WERE 4 YEARS OLD. FOLLOW-UP DATA WERE OBTAINED WHEN THE CHILDREN WERE 6 AND AGAIN WHEN THEY WERE 7. THE TWENTY QUESTIONS TASK WAS GIVEN AT THE FIRST TESTING SESSION AT THE UNIVERSITY. THE MOTHERS WERE GIVEN A TERSE DESCRIPTION OF AN AUTO ACCIDENT AND WERE REQUESTED TO ASK QUESTIONS ANSWERABLE BY "YES" OR "NO" TO DISCOVER WHY IT HAPPENED. THE RESPONSES WERE RECORDED VERBATIM AND THE SUBJECTS WERE SCORED ACCORDING TO SUCCESS IN SOLVING THE PROBLEM AND THE STRATEGY USED IN QUESTIONING. IN SCORING STRATEGIES, EACH QUESTION WAS CLASSED ACCORDING TO 4 CATEGORIES--(1) BROAD FOCUSING, (2) NARROW FOCUSING, (3) TRIAL AND ERROR, OR (4) IRRELEVANT. THE PERCENTAGE OF QUESTIONS FALLING IN EACH CATEGORY WAS COMPUTED. THE COMPLETE SET OF PROJECT MANUALS COMPRISES PS 000 475 THROUGH PS 000 492. (DR)

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THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN

Robert D. Hess, Principal Investigator

MANUAL OF INSTRUCTIONS

FOR ADMINISTERING AND SCORING

THE TWENTY QUESTIONS TASK

The measures developed in this manual were developed in the project, Cognitive Environments of Urban Pre-School Children, supported by: Research Grant #R-34 from the Children's Bureau, Social Security Administration, and the Early Education Research Center, National Laboratory in Early Education, Office of Education, both of the U.S. Department of Health, Education, and Welfare; the Division of Research, Project Head Start, U.S. Office of Economic Opportunity; the Ford Foundation Fund for the Advancement of Learning; and grants-in-aid from the Social Science Research Committee of the Division of Social Sciences, University of Chicago.

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THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN

The research sample for the Cognitive Environment Study was composed of 163 pairs of Negro mothers and their four-year-old children, from three socioeconomic classes, defined by father's occupation and parents' education: upper-middle, professional and executive, with college education; upper-lower, skilled and blue collar, wit high school education; lower-lower, semiskilled and unskilled, with no greater than tenth-grade education; a fourth group included father-absent families living on public assistance, otherwise identical to the lower-lower class group.

Subjects were interviewed in the home, and mothers and children were brought to the University of Chicago campus for esting, when the children were four years old. Follow-up data were obtained from both mother and child when the child was six years of age, and again at seven years.

Principal Investigator for the project is Professor Robert D. Hess, formerly Director, Urban Child Center, University of Chicago, now Lee Jacks Professor of Child Education, School of Education, Stanford University.

Co-Investigator for the follow-up study is Dr. Virginia C. Shipman, Research Associate (Associate Professor) and Lecturer, Committee on Human Development, and Director, Project Head Start Evaluation and Research Center, University of Chicago, who served as Project Director for the pre-school phase of the research.

Dr. Jere Edward Brophy, Research Associate (Assistant Professor), Committee on Human Development, University of Chicago, was Project Director for the follow-up study and participated as a member of the research staff of the pre-school study.

Dr. Roberta Meyer Bear, Research Associate (Assistant Professor), Committee on Human Development, University of Chicago, participated as a member of the research staff during the pre-school and follow-up phases of the project and was in charge of the manuscript preparation during the write-up phase of the research.

Other staff members who contributed greatly to the project include Dr. Ellis Olim, (University of Massachusetts, Amherst) who was responsible for the major analysis of maternal language; Dr. David Jackson, (Toronto, Ontario) who was involved in early stages of development of categories for the analysis of mother-child interaction, and participated in the processing and analysis of data; Mrs. Dorothy Runner, who supervised the training and work of the home interviewers, acted as a liason with public agencies, and had primary responsibility for obtaining the sample of subjects; and Mrs. Susan Beal, computer programmer.

COGNITIVE ENVIRONMENT STUDY

MANUAL FOR ADMINISTERING AND SCORING

THE TWENTY QUESTIONS TASK

ADMINISTRATION

During the first testing session at the University, mothers were presented the Twenty Questions task:

NOW, MRS. _____, I'M GOING TO PLAY A LITTLE GAME WITH YOU - SOMETHING LIKE "TWENTY QUESTIONS". I'M GOING TO GIVE YOU A BRIEF DESCRIPTION OF A SITUATION. WHEN I'M FINISHED, YOU CAN ASK TWENTY QUESTIONS TO HELP YOU FIND OUT WHY IT HAPPENED. I WILL ANSWER YOUR QUESTIONS WITH EITHER 'YES' OR 'NO'. HERE'S THE SITUATION:

IT WAS FRIDAY AFTERNOON AND MR. JONES' CAR RAN OFF THE ROAD. WHY?

NOW, YOU HAVE TWENTY QUESTIONS, BUT REMEMBER I CAN ONLY ANSWER 'YES' OR 'NO'. LET'S SEE IF YOU CAN GUESS THE ANSWER.

(Answer: He was sleepy.)

The tester recorded the mother's response-questions verbatim.

SCORING

Each subject received two types of scores: one for accuracy or success in solving the problem; and one for the strategy used in asking questions.

A. Procedure for scoring accuracy of response.

Subjects who solved the task in twenty questions or less, received the numerical score: number of questions asked, plus 1.

Subjects who quit before having asked twenty questions, received the numerical score: number of questions asked, plus 21.

Subjects who failed to solve the item after twenty questions, received the numerical score: 88. This single score was given whether the subject quit after asking twenty questions, or went on to ask more.

B. Procedure for Scoring the Strategies Employed.

For each subject, each response-question (up to 20) was coded as representing one of four strategies which might be employed in solving the Twenty Questions problem. Proportion or percentage scores were obtained by dividing the number of questions in each of the four categories by the total number of questions asked by the subject (up to 20). Each subject thus received four strategy scores, one for each of the categories below (range 0 - 100 per cent for each):

1. Broad-Constraint-Seeking or Focusing: Questions scored as representing this category include those which eliminated broad general categories of causes for Mr. Jones' accident, such as the mechanical condition of the car, Mr. Jones' physical or mental state, weather conditions, traffic conditions, the influence of other persons, etc. Subjects using this strategy are essentially testing and discarding general hypotheses.

2. Narrow Focusing, Sequential Trial-and-Error, or Scanning: Questions scored in this category include sequential specific questions within such broad categories as those listed above. The subject might, for example, ask two or more questions about the mechanical condition of the car ("Were the tires good?" "Were the brakes all right?") or about Mr. Jones' physical condition ("Was he sick?" "Was he drunk?"). Subjects using this strategy are apparently working with a general hypothesis, but the hypothesis remains unstated, and the questioning is less efficient than in the case of constraint-seeking. In addition, those questions requiring further questioning for solution, but which were stated in more specific terms than in #1, were included here.

3. Non-sequential Trial-and-error: Questions scored in this category include all relevant specific questions asked in non-sequential order, such as "Were his brakes good?" followed by "Was he drunk?" or "Did a child run in his way?" Subjects using this strategy are employing inefficient trial and error, neither taking advantage of the constraint possible with general categories nor obviously following any implicit hypothesis.

4. Irrelevant Questions: Included in this category are all questions not pertinent to the problem, e.g., "Was he a church-goer?", "Was he married?", etc., or questions previously answered.